

Habitat Committee

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NEFMC staff**

**Habitat Committee
June 10, 2022
Via Webinar**



2022 Habitat Work Priorities

- **Southern New England Habitat Area of Particular Concern** – Council initiated action in February and reviewed alternatives in April; Committee will recommend preferred alternatives today; final Council action planned for June 30
- **Offshore wind engagement** – Council staff are working with NOAA staff on habitat monitoring recommendations; ongoing topics include GOM and Central Atlantic lease planning, fisheries mitigation guidance; DEIS documents expected this summer
- **Northeast Regional Habitat Assessment** – 3-yr project ends in July; presenting results to Council on June 30; developing the NRHA Data Explorer and will also partner with regional portals to share spatial data; formal product roll out starting in July
- **Atlantic salmon framework** – will discuss Blue Water Fisheries project today and a possible scope for the framework; Council can consider initiating a framework in September
- Not a 2022 priority but discussed in February - **Great South Channel HMA and clam exemptions** – anticipate final report on EFP-based research project on June 10, will discuss during August/September Committee/Council meetings

Habitat Area of Particular Concern

HAPC in Southern New England

- Habitat Areas of Particular Concern are a subset of essential fish habitat (EFH)
- HAPCs guide and support NOAA's essential fish habitat consultations
 - Here, concerns about impacts of wind energy and other development on EFH
- Two types of alternatives
 - Cod spawning HAPC
 - Multispecies complex habitat HAPC

Habitat Committee (March 17)

- Develop and analyze three alternatives in addition to no action*
 - Alternative 2: Cod spawning HAPC encompassing Cox Ledge
 - Alternative 3: Cod spawning HAPC encompassing Cox Ledge, Nantucket Shoals, and any spawning sites identified in the future based on new data
 - Alternative 4: HAPC for multiple species (benthic, pelagic, complex habitats and soft bottom)
- HAPC boundaries reviewed at the meeting
 - Boundaries for Cox Ledge area based on acoustic survey extent
 - Boundaries for Nantucket Shoals areas roughly drawn around adjacent spawning areas
 - Boundaries for broad areas in Alternative 3 and 4 were based roughly on survey strata
- Cod spawning HAPCs with boundaries clipped wind lease areas only were moved to considered but rejected
- No preferred alternative was recommended
- Council should consider final action in April

* Note that alternative numbering was revised after this meeting; these are the current numbers

Plan Development Team (March 28)

- Recommend basing boundary for Cox Ledge area on cod detections, not acoustic study area footprint
- Should consider incorporating additional supporting information for Cox Ledge area into alternatives (South Fork Wind Farm survey, tagging data)
- Thought HAPC for multiple species (Alternative 4) was too broad; discussed a range of approaches for narrowing the scope

Council (April 12)

- Council reviewed alternatives recommended for analysis by Committee and refined by PDT
 - Cox Ledge HAPC discussed at this meeting was based on minimum bounding of acoustic detections, with 500-meter buffer
 - Nantucket Shoals HAPC discussed at this meeting was based on minimum bounding of consensus spawning grounds, with 500-meter buffer
 - Multi-species HAPC remained broad (complex and non-complex benthic habitats, pelagic habitats)
- Two motions (Alternative 3 preferred; Alternatives 3 and 4 preferred) were discussed, but tabled until June meeting
 - Concerned that Alternative 4 was too broad
 - Concerned that trigger mechanism in Alternative 3 not specific enough

Plan Development Team (April 29)

- For Alternatives 2 and 3, recommended including additional observations of spawning activity within Cox Ledge area boundary (SFWF survey, tagging data), minimum bounding polygon, 500-meter buffer
 - Should convey number of observations associated with these data sets
 - Should consider importance of protecting eggs and larvae
- For Alternative 3, agreed with Council that we should be more specific about conditions under which HAPC would be applied
- For Alternative 4, recommended narrowing focus to complex habitat, and species and lifestages associated with complex habitat

Advisory Panel (May 24)

- Cod spawning HAPC
 - Cox Ledge HAPC reviewed at this meeting was based on minimum bounding of acoustic detections, survey catches, and tag release locations, with 500-meter buffer
 - Discussed No Action, Alternative 2, and Alternative 3, and recommended Alternative 2 (Cox Ledge) to the Committee
 - *Rationale:* More targeted, would help protect spawning cod from offshore wind impacts
- Multispecies complex habitat HAPC
 - Discussed No Action and Alternative 4 and recommended No Action
 - *Rationale:* Too broad, no clear focus on offshore wind

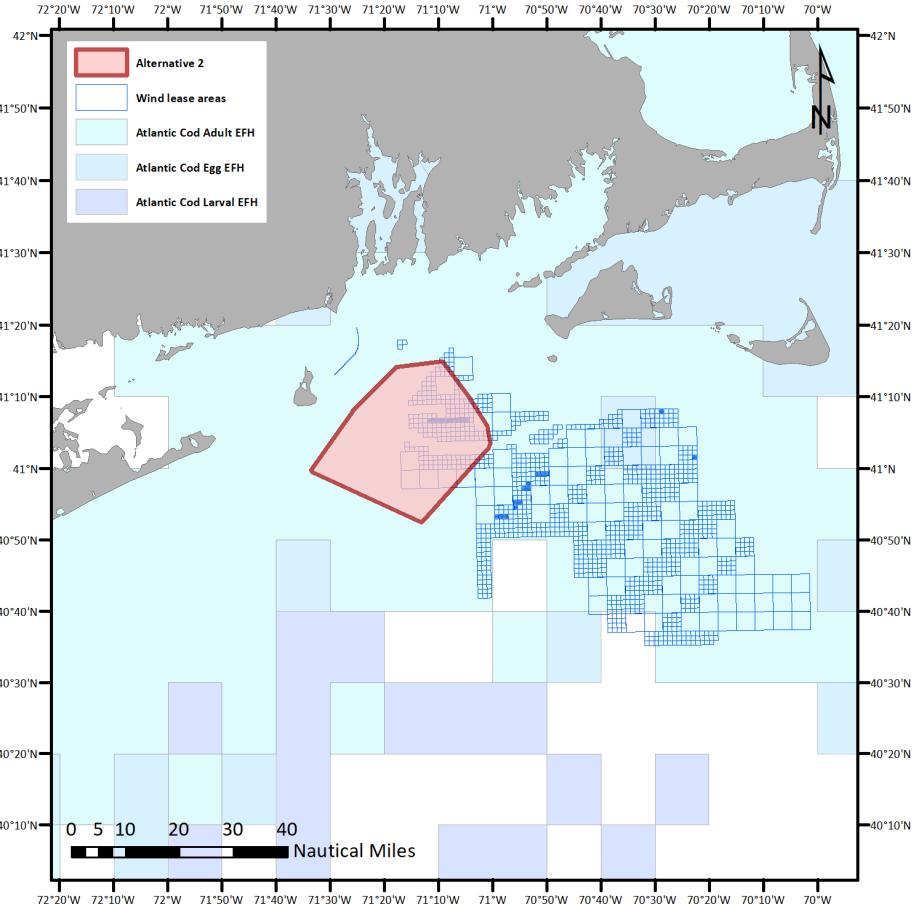
Plan Development Team (June 1)

- For Alternatives 2 and 3
 - Recommended included cod eggs and larvae in designation
 - For Alternative 3, recommended basing the boundary of the broad area (potential spawning sites) on the SNE cod stock area
 - Reviewed list of conditions under which Alternative 3 would apply
 - Discussed whether a larger buffer (500-m to ~10 miles) around spawning observations would be more appropriate
- For Alternative 4, reviewed list of species and lifestages associated with complex habitat and definition of complex habitat; identified example habitat data sets

Cod spawning

- A spawning aggregation is defined as a group of spawning cod that persistently forms in a specific time and area.
 - Aggregations are typically dense, localized schools.
 - Haystack is a colloquial term used to also describe a spawning aggregation (cod spawning aggregations look like haystacks on a fish finder).
- A cod spawning ground is a general region that supports one or more cod spawning aggregations.
- Cod spawning activity is defined as presence of cod in spawning condition (ripe, ripe and running, or spent), evidence of mating behavior such as recording of spawning grunts (low frequency noises used by males to attract females), and skewed sex ratios.

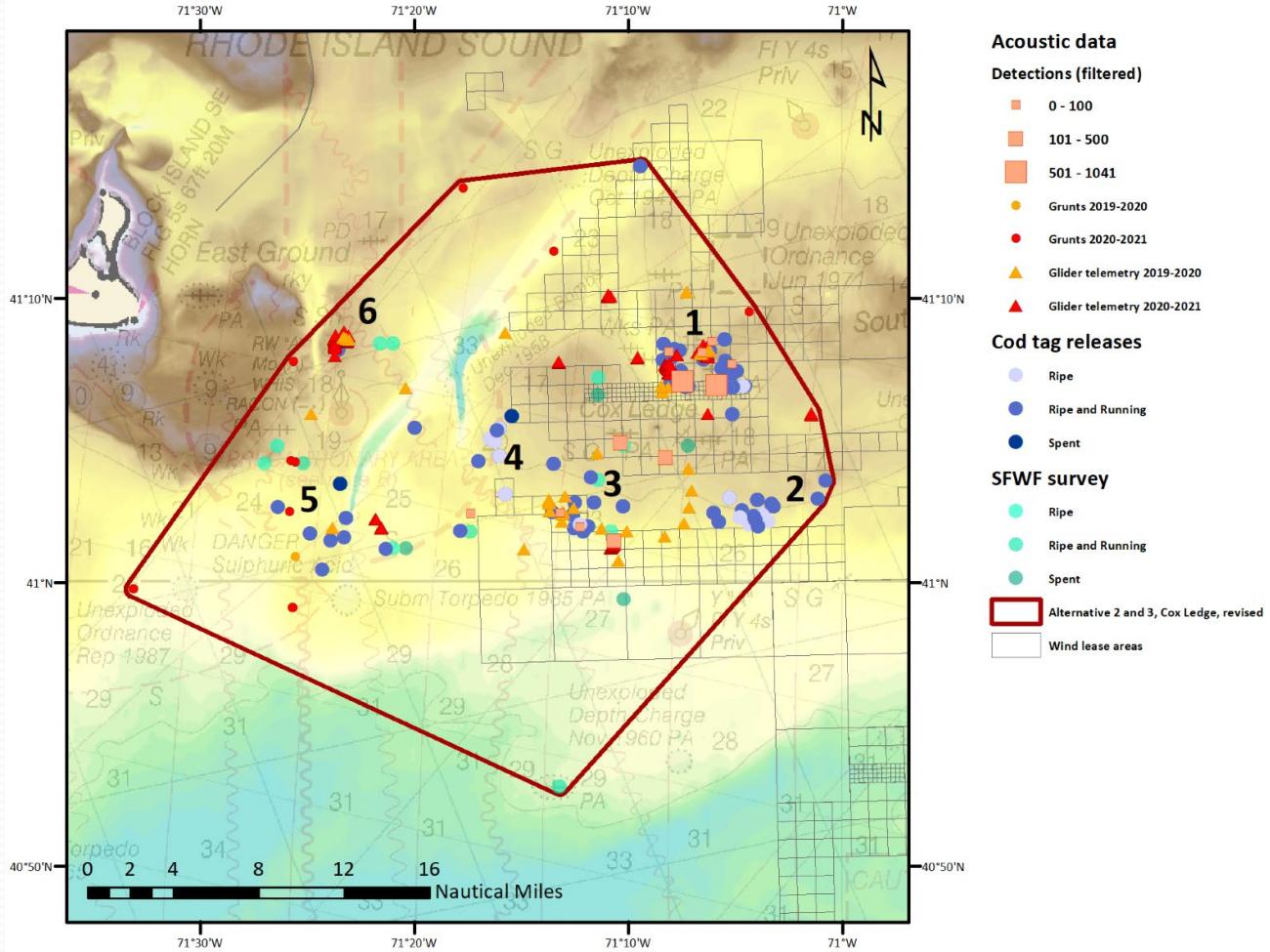
Alternative 2 – Cox Ledge



- This alternative would designate an area representing the intersection of adult Atlantic cod EFH and currently active cod spawning grounds on and surrounding Cox Ledge as a Habitat Area of Particular Concern (red area at left).
- Entire HAPC area is a cod spawning ground
- Within HAPC, discrete locations of high cod spawning activity are identified --> NOAA could deem these discrete areas as a higher priority during EFH consultation

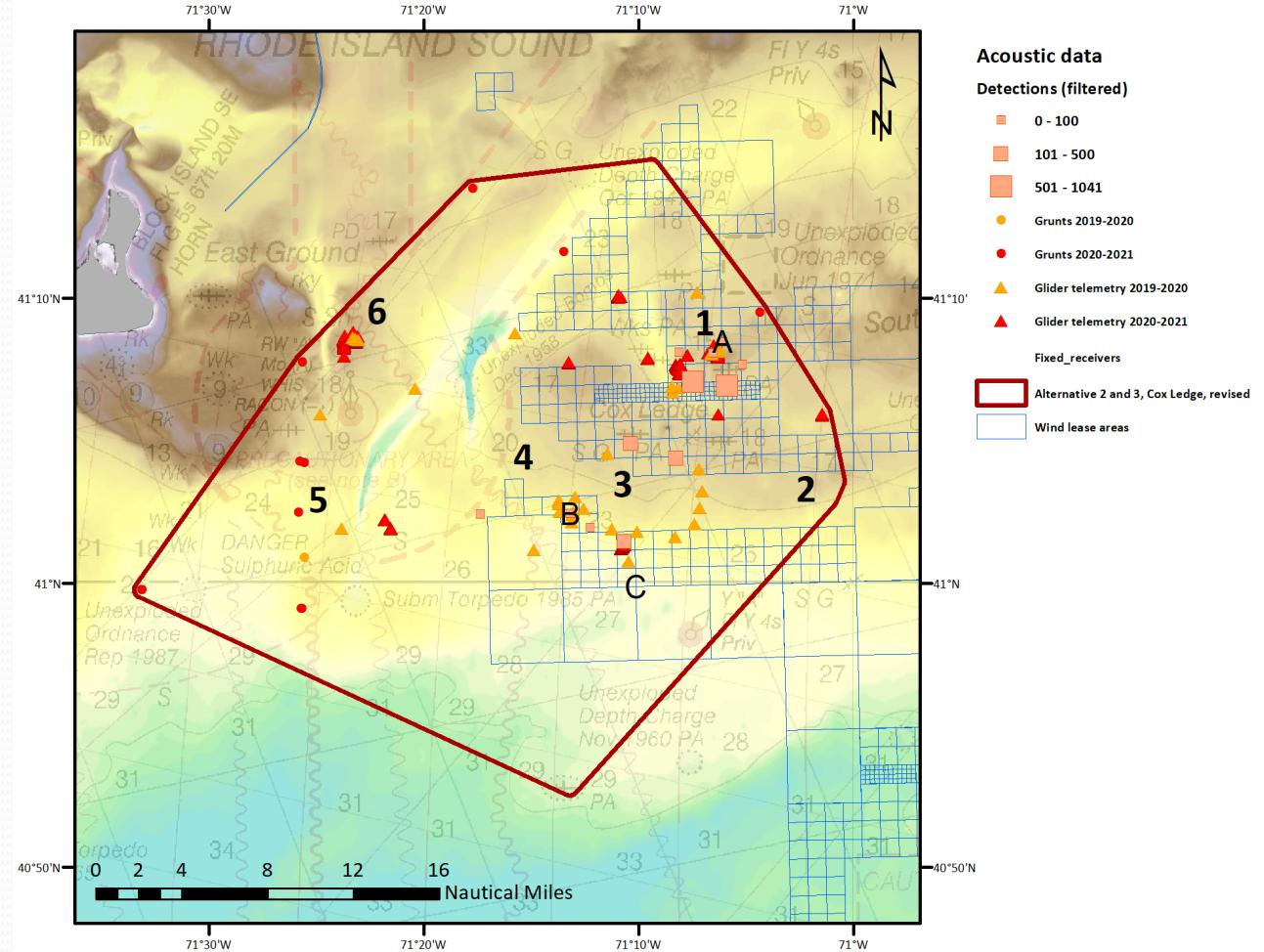
Supporting Info

- Acoustic research: Positive detections of cod mating sounds (grunts) and detections of tagged adult cod in recent acoustic surveys
- Traditional tagging: Release locations of tagged cod in ripe, running, or spent condition
- Spawning survey: Catches of ripe, running, or spent cod



Acoustic research

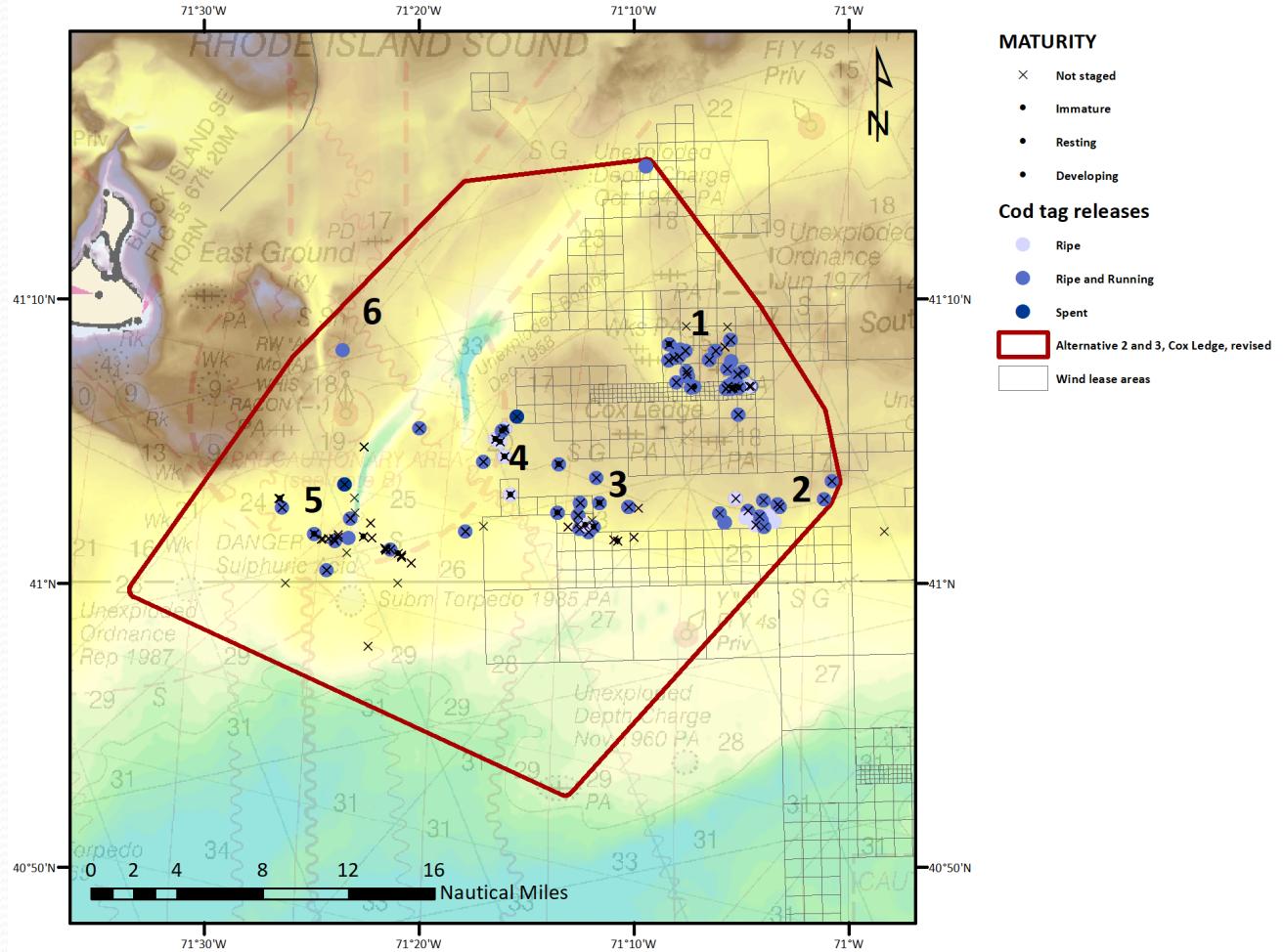
- Data shown are from 2019-20 and 2020-21; from gliders and fixed receivers. Study is ongoing.
- Temporal extent of spawning season is well understood. Grunts most prevalent November to January (grunt rate signals increase in spawning activity)
- Full spatial extent of spawning site is less well understood; acoustic detection range is short, so fish/grunts outside sampling area could be missed



VanParijs, S. Mapping the distribution of habitat use of a soniferous fish on Cox's ledge, with a focus on Atlantic cod spawning aggregations. Presentation to NEFMC Habitat PDT, March 9, 2022.
VanHoeck, R. V., T. J. Rowell, M. J. Dean, A. N. Rice, S. M. VanParijs (In review). Comparing Atlantic cod temporal spawning dynamics across a biogeographic boundary: Insights from passive acoustic monitoring.

Traditional tagging

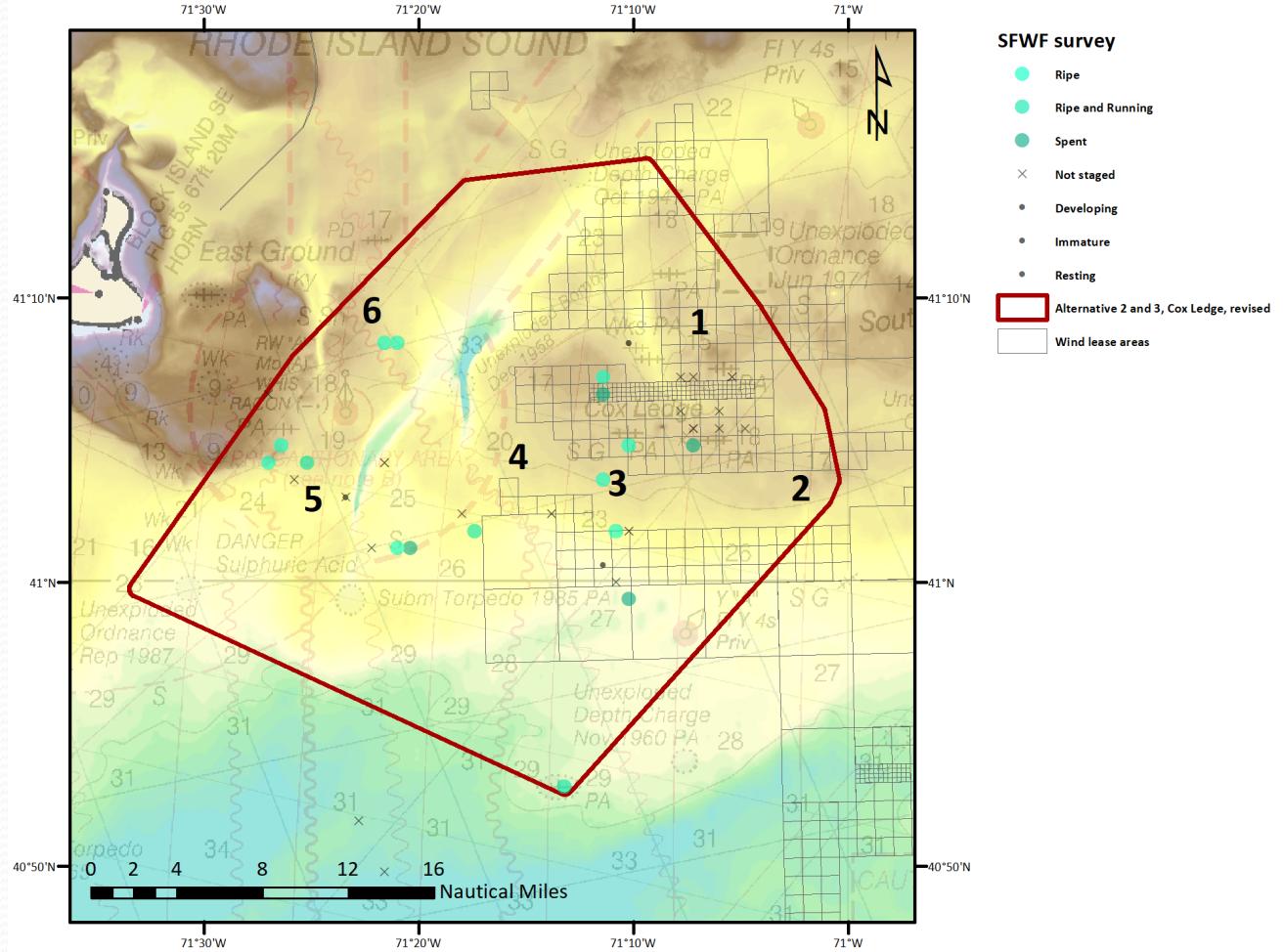
- Fish were tagged and released during the spawning season, between 2007-2011
- Some fish were cannulated and staged; release locations of fish in ripe, ripe and running, or spent condition shown in blue
- Release locations often represent multiple individual fish



Dean, M. J., G. R. DeCelles, D. R. Zemeckis and T. Ames (In review). Chapter 3. Early Life History Spawning to Settlement. In RS McBride & RK Smedbol (Eds) An Interdisciplinary Review of Atlantic Cod (*Gadus morhua*) Stock Structure in the Western North Atlantic Ocean. NOAA Technical Memorandum NMFS-NE.

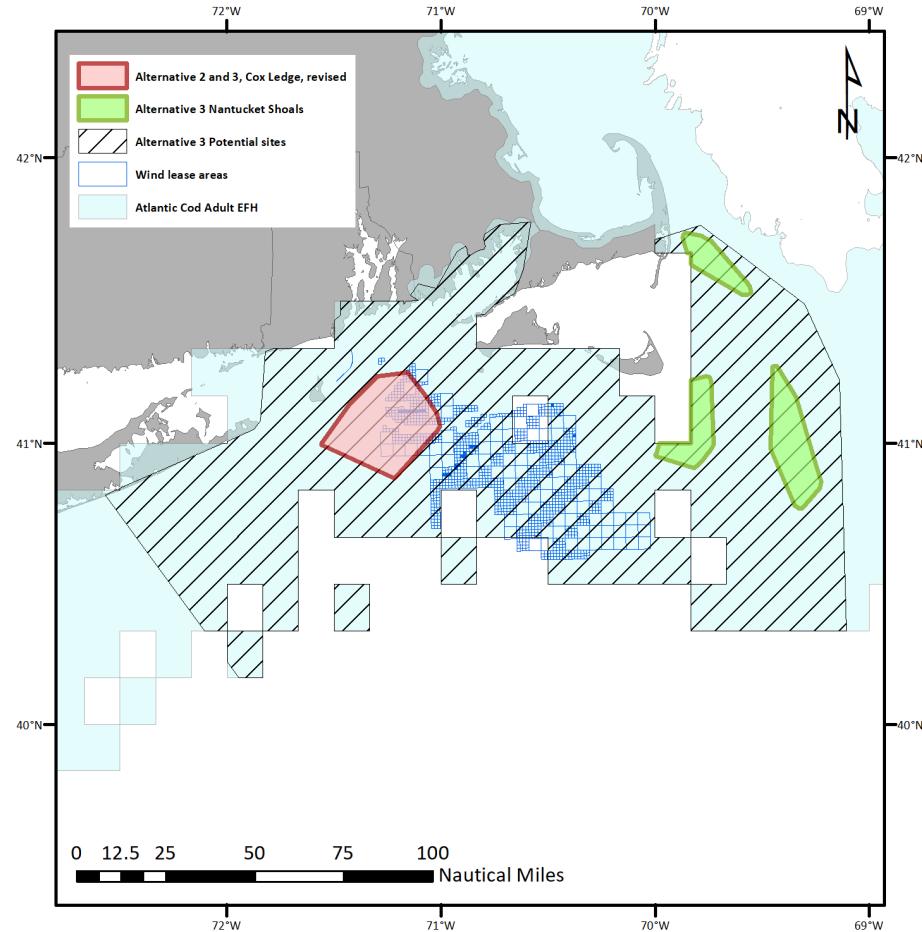
Spawning survey

- Cod spawning survey for South Fork Wind Farm
- Winter seasons 2018, 2018-2019



Balouskus, R., Gervelis, B. and D. Carey (2019). South Fork Wind Farm Reconnaissance Atlantic Cod Spawning Survey January-April 2018 Final Report.
Gervelis, B. and D. Carey (2020). South Fork Wind Farm Observational Atlantic Cod Spawning Survey December 2018-April 2019 Final Report.

Alternative 3 – Initial approach/boundaries

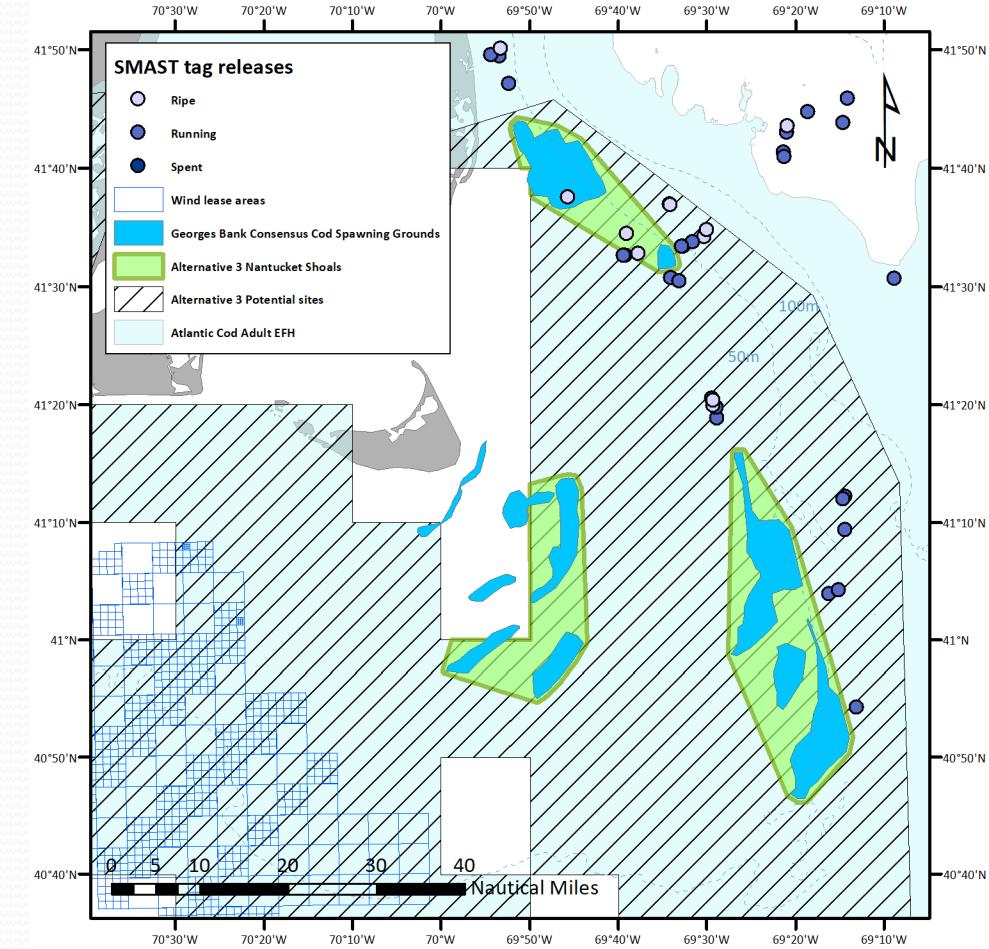


This alternative would designate an area representing the intersection of Adult cod EFH with (1) areas on and around Cox Ledge where cod are currently spawning (red), (2) areas on Nantucket Shoals where there is historical evidence of spawning (green), and (3) any future cod spawning areas identified in Southern New England (hatched) as Habitat Areas of Particular Concern.

For the purpose of applying the HAPC designation in the hatched area, evidence of cod spawning activity at a site could come from detection of cod grunts, detections of tagged spawners, catches of cod in spawning condition, or detection of early life history stages (eggs, larvae).

Information to support Nantucket Shoals sites

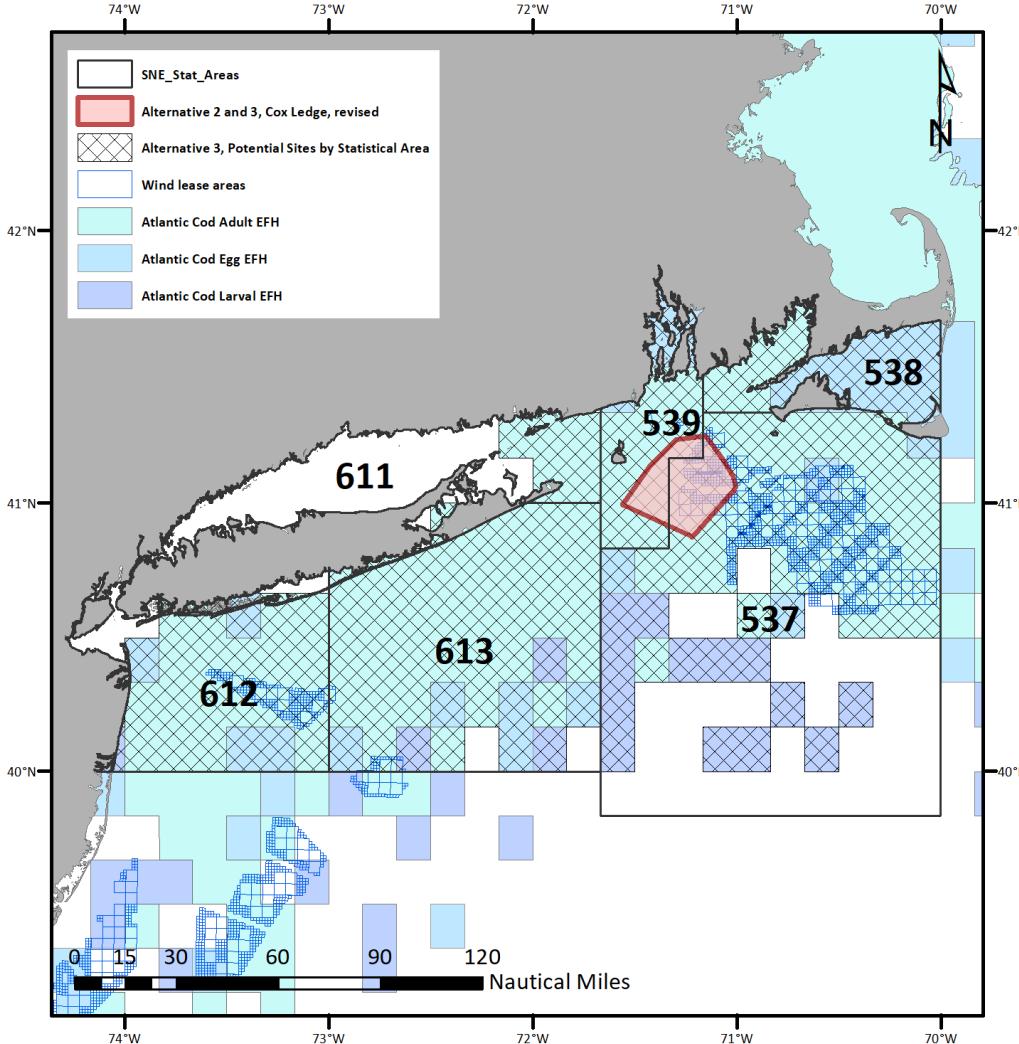
- Consensus spawning grounds
 - Fishermen's ecological knowledge, trawl surveys (US and Canada), Canadian observer program data, ichthyoplankton sampling, and the marine resource monitoring and assessment program data
- Tag releases of fish in spawning conditions



DeCelles, G. R., D. Martins, D. R. Zemeckis, T. Ames and S. X. Cadrin (2016). Mapping the Distribution of Atlantic Cod Spawning on Georges Bank Using Fishermen's Ecological Knowledge and Scientific Data: 129.

DeCelles, G. R., D. Martins, D. R. Zemeckis and S. X. Cadrin (2017). "Using Fishermen's Ecological Knowledge to map Atlantic cod spawning grounds on Georges Bank." ICES Journal of Marine Science 74(6): 1587-1601.

Alternative 3 – Updated PDT Recommendation

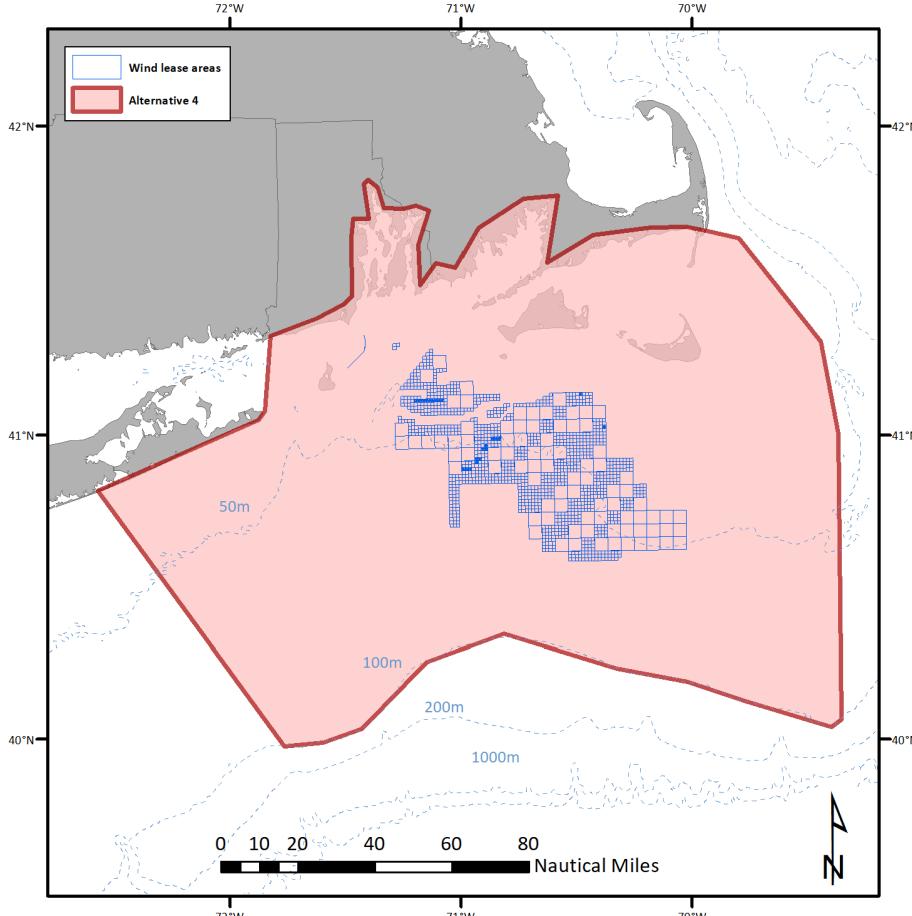


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Note: Broader area determined by statistical areas of SNE cod stock

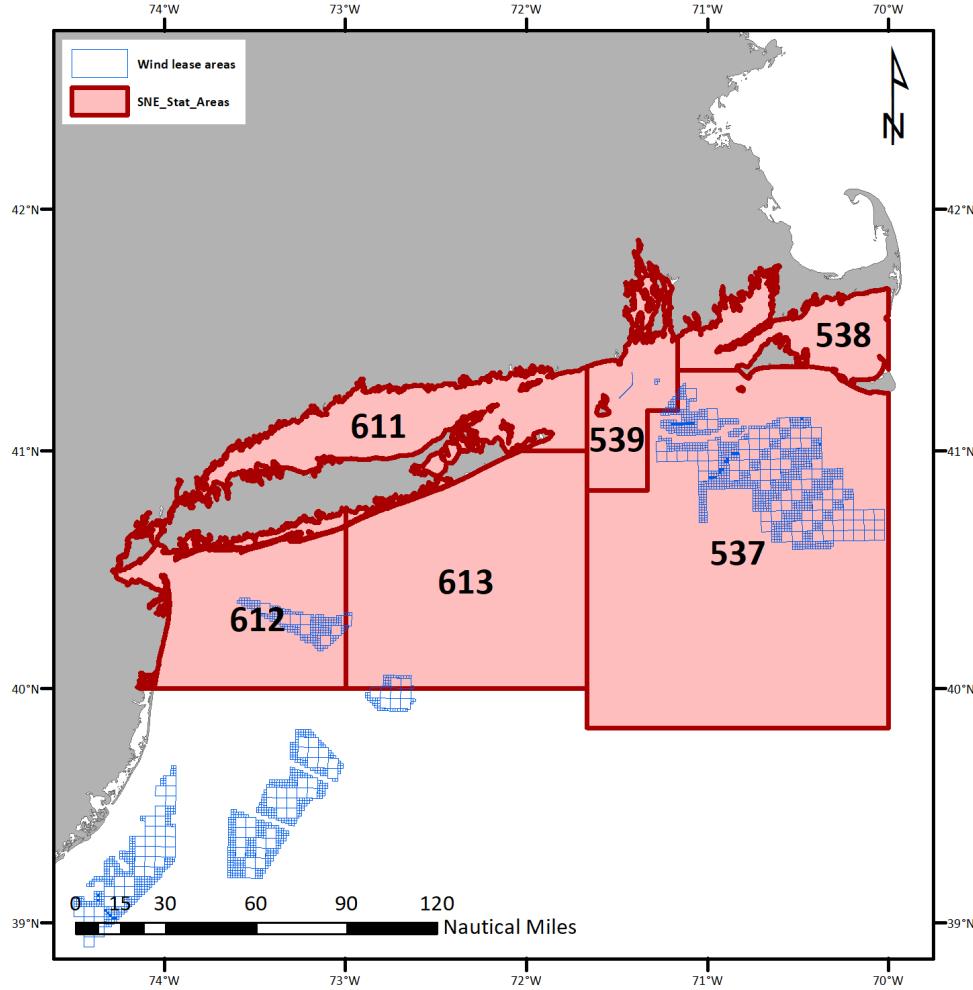
Alternative 4 – Initial approach/boundary



Alternative 4 would designate all areas in Southern New England with EFH for all lifestage of Atlantic cod, Atlantic herring, Atlantic sea scallop, little skate, monkfish, ocean pout, red hake, silver hake, windowpane flounder, winter flounder, winter skate, and yellowtail flounder as a Habitat Area of Particular Concern, grouping species as follows to correspond to vulnerability of their habitats to different development activities:

- Species and lifestages with pelagic eggs and larvae
- Species and lifestages with pelagic juveniles and adults
- Species and lifestages that typically occupy benthic complex habitat or hard bottom
- Species and lifestages that typically occupy benthic soft bottom
- Species and lifestages that occupy nearshore habitats

Alternative 4 – Updated PDT recommendation



Alternative 4 would designate all areas in Southern New England with complex habitats (see definition on next slide) as HAPC for the following species and lifestages:

- Atlantic cod juveniles, adults
- Atlantic herring eggs
- Sea scallop eggs, juveniles, adults
- Little skate juveniles, adults
- Monkfish juveniles, adults
- Ocean pout eggs, juveniles, adults
- Red hake juveniles, adults
- Winter flounder eggs, juveniles, adults
- Winter skate juveniles, adults

Complex habitat definition

- Hard bottom substrates, defined by the Coastal and Marine Ecological Classification Standard (CMECS) as Substrate Class Rock Substrate and by the four Substrate Groups: Gravels, Gravel Mixes, Gravelly, and Shell. This CMECS modifier was developed by NOAA Fisheries for their habitat mapping recommendations, including both large-grained and small-grained hard habitats.
- Hard bottom substrates with epifauna or macroalgae cover.
- Vegetated habitats (e.g., submerged aquatic vegetation and tidal wetlands).

Alternative 4 complex habitat data sources

- Project-related surveys,
- Glacial moraine,
- Deep-sea coral habitat,
- Eelgrass meadows, submerged aquatic vegetation,
- Tidal marsh vegetation,
- Shellfish habitat,
- Percent sediment type from Northeast Fishing Effects Model,
- Long Island Sound Blue Plan hard bottom habitat,
- MA Coastal Zone Management seafloor sediment database
- Etc.

Alternative 4 supporting information

- Complex habitat important for shelter during early life history, refuge from predators, feeding opportunities for juveniles
- 5 out of the 9 stocks are overfished; several species had high occurrence of habitat use within the wind area relative to their occurrence shelf-wide
- Impacts from offshore development on fishes, habitats:
 - Acoustics, physical habitat conversion and losses, scour and sedimentation, reef effects, hydrodynamic effects, water entrainment, electromagnetic field
- Impact mitigation approaches:
 - Avoid construction in spawning grounds / complex habitat, monitoring plan for species of concern incl. passive acoustic monitoring, time of year restrictions on construction, noise dampening tech., etc.

EFH Consultations

- All federal agencies must complete EFH consultation with NOAA Fisheries when a publicly funded action is determined to adversely affect EFH
 - Identifies measures to avoid, reduce, or compensate for direct and indirect adverse impacts to fish habitat (physically, chemically, or biologically)
 - Fishing and non-fishing activities
 - Non-binding conservation recommendations
 - NOAA considers EFH as well as HAPC designations

1. Action agency notifies NOAA of project; pre-consultation discussions occur
2. Agency submits an EFH assessment
3. NOAA reviews EFH assessment for completeness
4. If incomplete, NOAA requests additional information
5. Once deemed complete, NOAA provides the conservation recommendations to the action agency within 30 days (regular) or 60 days (expanded)
6. Action agency responds to NOAA within 30 days for how agency will proceed

Comparison chart/impacts on fishery resources

Alternative	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4
Description	No new HAPCs	A cod spawning HAPC around Cox Ledge	A cod spawning HAPC around Cox Ledge and at other sites as determined by future data	A regional HAPC for several NEFMC species with complex habitat in SNE
Positive impacts	None	<ul style="list-style-type: none"> - Could impact overlapping Revolution & Sunrise Wind projects (not yet permitted) - Protects spawning areas if CRs adopted - Indirect benefits to other species/EFH - Focused on specific habitat function - Emphasizes need for additional data 	<ul style="list-style-type: none"> - As for Alt 2 - Could influence a greater number of wind projects (relative to Alt 2) given many are not yet permitted (except for Vineyard Wind, South Fork) - Proactive approach where spawning is not yet clearly documented 	<ul style="list-style-type: none"> - Could influence wind projects not yet permitted - Comprehensive, allows for accounting of multiple species and development effects - Emphasizes targeted data collection on complex habitat within SNE
Negative impacts	None	<ul style="list-style-type: none"> - Won't impact permitted lease areas (South Fork) - No designation for historical and future identified grounds - Indirectly adds scrutiny to fisheries mgmt. measures 	<ul style="list-style-type: none"> - Won't influence overall project location given the areas are already leased - Requires additional data to apply designation to new sites - Indirectly adds scrutiny to fisheries mgmt. measures 	<ul style="list-style-type: none"> - Very broad, no specific area of emphasis - Indirectly adds scrutiny to fisheries mgmt. measures

Offshore Wind Project Status

Bold
denotes next
stage in
NEPA
process,
comment
opportunity

Project name	Overall Project Status*	Stage in NEPA process
Vineyard Wind 1	Permitted	NOI published 3/30/2018 Final EFH Assessment published 4/2019 DEIS published 6/12/2020 FEIS published 3/2021 ROD published 5/10/2021 COP approved 7/15/2021
South Fork Wind	Permitted	NOI published 10/19/2018 DEIS published 1/4/2021 Final EFH Assessment (revised) published 4/7/2021 FEIS published 8/16/2021 ROD published 11/24/2021 COP approved 1/18/2022
Revolution Wind	Not permitted, in progress	NOI published 4/30/2021 DEIS expected 7/1/2022 Final EFH Assessment TBD FEIS expected 3/24/2023 ROD/COP expected 5/1/2023

Project name		Overall Project Status*	Stage in NEPA process
New England Wind (formerly VW South)	Phase 1: Park City Wind	Not permitted, in progress	NOI published 6/30/2021 DEIS expected 8/26/2022 FEIS expected 6/23/2023 ROD expected 7/23/2023
	Phase 2: Commonwealth Wind		
Sunrise Wind		Not permitted, in progress	NOI published 9/3/2021 DEIS, EFH Assessment, FEIS TBD ROD/COP expected 11/21/2023
Mayflower Wind Energy		Not permitted, in progress	NOI published 11/1/2021 COP published 10/2021 DEIS expected in 2022 NOA expected 1/2023 FEIS expected 9/2023 ROD expected end of 2023
Beacon Wind		Not permitted, in progress	SAP approved 9/24/2021 COP TBD
Liberty Wind (lease 522, formerly Vineyard Wind)		Planned	Lease secured in 2019 SAP TBD
Bay State Wind		Planned	Lease secured in 2015 SAP TBD

Decisions for today

- Cod spawning HAPC
 - Recommend either Alternative 2 or 3, or No Action
 - For Alternatives 2 and 3, consider whether 500 m buffer is sufficient around spawning observations, or if a larger distance would be more appropriate
 - For Alternative 3, recommend map based on SNE cod stock area, or survey strata
- Multispecies complex habitat HAPC
 - Recommend either Alternative 4 or No Action
 - For Alternative 4, recommend map based on stock area(s), or survey strata

Next steps

- Council expected to take final action on June 30
- Staff/PDT will complete document and submit in July
 - Expect to qualify for a Categorical Exclusion under NEPA
- NOAA Fisheries will review and implement
 - Once any required edits are completed, will publish a notice of the FMP changes and seek public comment
 - No rulemaking for HAPCs, so will go into effect upon final approval by NOAA Fisheries

Aquaculture

Aquaculture

- Update from Chris Schillaci (separate slide deck)
 - Blue Water Fisheries project – scope, timing, next steps
- Issues for the Committee to consider
 - When to initiate a Council framework related to salmon aquaculture authorization?
 - What should the scope of that framework be?
 - Just BWF project, or any future salmon aquaculture project
 - Provisions for landing salmon (FMP has no-take provision)
 - Recommendations for siting/spatial planning?
 - Identify other best management practices?

Kingfish – EFH Consultation

- Land-based yellow amberjack (*Seriola lalandi*) facility
 - Will withdraw seawater from Chandler Bay and discharge back into bay as treated wastewater (28.7 million gallons per day at full capacity)
 - Trenching will be used to place pipelines in intertidal and subtidal areas to connect facility to Chandler Bay; EConcrete collars to hold pipes in place
- EFH Conservation Recommendations:
 - CR1: Compensatory mitigation for pipeline installation impacts
 - CR2: Monitoring EConcrete colonization
 - CR3: Assess potential entrainment impacts
 - CR4: End work window on March 14 to protect winter flounder
 - CR5: Assess scour and erosion along pipeline
 - CR6: Develop blasting plan if needed
 - CR7: Develop turbidity and sedimentation control plan

Offshore Development

Amitie Fiber Optic Cable – EFH Consultation

- Fiber optic submarine cable – Lynn, MA to Bude, UK and Gironde, FR; installation via directional drilling, plow, and jet burial
- Concerned about cable route intersecting with hard/complex habitat and EFH within WGOM Closure/Habitat Closure/Stellwagen DHRA
- CR1: Avoid WGOM Closure, or if not met, adopt
- CR2: Fine-scale benthic survey capable of detecting grain sizes 2-256 mm, used to fully delineate and characterize natural rocky habitats (grain size > 2 mm)
- Cr3: Use results from CR2 to avoid impacts to sensitive habitats
- CR4: Compensatory mitigation
- CR5: Avoid in-water work during cod spawning periods (winter and spring) and CR6 winter flounder settlement
- CR7: Conduct post deployment monitoring surveys
- CR8: Overlay surface-laid cable with rounded stone

Gulf of Maine Task Force Meeting – May 19

- **Discussed:** Commercial planning process for wind energy leasing in federal waters of GOM
 - State and federal perspectives on offshore wind in GOM incl. research lease
 - Overview of the Request for Interest (RFI), Stakeholder engagement
- **Council staff focused comments on:**
 - Findings from research array should inform commercial lease
 - Impacts of development should be realistically estimated
 - GOM planning area is too broad as a foundation for EIS development
 - GOM is data poor re-habitat data; need habitat mapping, benthic surveys
 - Directly relate procurement goals with leasing
 - Coordinated transmission
 - BOEM should share info early and often

Offshore Wind Comment Opportunities

- Maine Research Lease – Request for Competitive Interest (RFCI)
 - Publication expected early summer 2022; 45-day comment period
- GOM commercial leasing – Request for Information
 - Publication expected summer (Q3) of 2022; 30-day comment period
- Draft fisheries mitigation guidance
 - Publication expected within 1-2 weeks; all public meetings postponed
(East Coast meeting TBD)
- Notices Of Availability for DEIS documents
 - Summer 2022, see previous table for timing of individual projects

Northeast Regional Habitat Assessment

Northeast Regional Habitat Assessment

- A collaborative, multi-disciplinary project to develop decision support products for marine fish habitat management
 - Michelle Bachman, New England Fishery Management Council, Inshore Team Co-Lead (mbachman@nefmc.org)
 - Jessica Coakley, Mid-Atlantic Fishery Management Council, Coordinator, Inshore Team Co-Lead (jcoakley@mafmc.org)
 - Chris Haak, Monmouth University/NOAA Northeast Fisheries Science Center, Post-Doc (chaak@monmouth.edu)
 - Tori Kentner, Mid-Atlantic Fishery Management Council, Spatial Ecologist (tkentner@mafmc.org)
 - Laurel Smith, NOAA Northeast Fisheries Science Center, Offshore Team Lead (laurel.smith@noaa.gov)

Goal: To describe and characterize estuarine, coastal, and offshore fish habitat distribution, abundance, and quality in the Northeast

- Four actions were identified as necessary to meet this goal:
 - 1) Inshore fish habitat assessment
 - 1. Fish distribution and abundance
 - 2. Habitat distribution, status, and trends
 - 2) Habitat vulnerability including response to changes in climate,
 - 3) Spatial descriptions of species habitat use in the offshore area, and,
 - 4) Habitat data visualization and decision support tools.

Assessment products at a glance

- **Data inventory**
 - Catch data from state and federal fisheries-independent surveys; including comparison table
 - Environmental datasets (used as model covariates)
 - One page metadata document for each survey or data set
- **Habitat use**
 - Species profiles: Summarize life history and habitat use for each focus species
 - Stage-based, single species and joint species distribution models (SDMs)
 - Inshore Habitat Report
- **Climate vulnerability**
 - Species-habitat matrix and climate vulnerability narratives
- **Habitat data visualization and decision support tools**
 - NRHA Data Explorer: R-Shiny application used to show trends in species distribution and abundance at state and regional scales, and to share other products and documentation
 - Working with partners at Mid-Atlantic Ocean Data Portal, Northeast Ocean Data Portal, and possibly NOAA DisMAP to share selected products
- **Scientific publications/reports**
 - Community-level Basis Function Modeling methods paper and R package; others in development

Characterizing Habitat: A comprehensive strategy

- **Stage-based approach**
 - Partitioning spp. into distinct classes based on ontogeny (i.e., juveniles & adults)
 - Better resolution of stage-specific requirements or habitat shifts?
- **Joint-species distribution model**
 - Using a novel spatiotemporal approach (CBFM) w/ comparison to GAMs
 - Improved predictions & possible ecological insights?
- **Dynamic & ecologically relevant covariates**
 - Temporally varying predictors that reflect dynamic nature of the system
 - Predictors with direct consequences for ecological function of animals

Applications for NRHA Products

- **Essential Fish Habitat:** NRHA provides more specificity on which environmental factors influence species distribution.
 - EFH text descriptions and maps
 - Habitat area of particular concern (HAPC) designations
 - Potential for shifts due to climate change and adaptive approach with automated updates
- **State of the Ecosystem Reports:**
 - NRHA provides habitat and climate change information on managed species
- **Single Species Assessments:** Addresses Ecosystem TORs (e.g. butterfish 2022)
 - NRHA provides historic distributions and projected distributions due to climate change
 - Links between environmental drivers and stock health and recruitment

